

RAW SEQUENCE LISTING

**The Biotechnology Systems Branch of the Scientific and Technical
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Application Serial Number: 10/728,131

Source: 1FWO

Date Processed by STIC: 11/9/04

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IFWO

RAW SEQUENCE LISTING

DATE: 11/10/2004

PATENT APPLICATION: US/10/728,131

TIME: 17:57:47

Input Set : A:\PTO.AMC.txt

Output Set: N:\CRF4\11102004\J728131.raw

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4 <110> APPLICANT: Neeper, Michael P.
5      McClements, William L.
6      Jansen, Kathrin U.
7      Schultz, Loren D.
8      Chen, Ling
9      Wang, Xin-Min
11 <120> TITLE OF INVENTION: SYNTHETIC HUMAN PAPILLOMAVIRUS GENES
14 <130> FILE REFERENCE: 20413YCA
16 <140> CURRENT APPLICATION NUMBER: 10/728,131
17 <141> CURRENT FILING DATE: 2003-12-04
19 <150> PRIOR APPLICATION NUMBER: 09/642,405
20 <151> PRIOR FILING DATE: 2000-08-21
22 <150> PRIOR APPLICATION NUMBER: PCT/US00/22932
23 <151> PRIOR FILING DATE: 2000-08-21
25 <150> PRIOR APPLICATION NUMBER: 60/210,143
26 <151> PRIOR FILING DATE: 2000-06-07
28 <150> PRIOR APPLICATION NUMBER: 60/150,728
29 <151> PRIOR FILING DATE: 1999-08-25
31 <160> NUMBER OF SEQ ID NOS: 150
33 <170> SOFTWARE: FastSEQ for Windows Version 4.0
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36 <211> LENGTH: 1518
37 <212> TYPE: DNA
38 <213> ORGANISM: Artificial Sequence
40 <220> FEATURE:
41 <223> OTHER INFORMATION: Codon-Optimized HPV16 L1
43 <400> SEQUENCE: 1
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46 cgctgtctgg ccgtgggcca cccctacttc cccatcaaga agcccaacaa caacaagatc 180
47 ctggtgcccga aggtgagcgg cctgcagtag cgcgtgttcc gcatccacct gcccgacccc 240
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54 gtggacaccg gcttcggcgc catggacttc accaccctgc aggcccaaaa gagcgagggtg 660
55 cccctggaca tctgcaccag catctgcaag taccctgact acatcaagat ggtgagcgag 720
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57 ttcaaccgcg ccggcgccgt gggcgagaac gtgcccgcag acctgtacat caagggcagc 840
58 ggcagcaccg ccaacctggc cagcagcaac tacttcccca ctcccagcgg cagcatgggtg 900
59 accagcgacg cccaaatctt caacaagccc tactggctgc agcgcgccc aaggccacaa 960

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62 aaggagtacc tgcgccacgg cgaggagtac gacctgcagt tcatcttcca gctgtgcaag 1140
63 atcaccctga ccgccgacgt gatgacctac atccacagca tgaacagcac catcctggag 1200
64 gactggaact tcggcctgca gcccctccc ggcggtaccc tggaggacac ctaccgcttc 1260
65 gtgaccagcc aggccatcgc ctgccagaag cacacccttc ccgctcccaa ggaggatccc 1320
66 ctgaagaagt acaccttctg ggaggtgaac ctgaaggaga agttcagcgc cgacctggac 1380
67 cagttccccc tgggccgcaa gttcctgctg caggccggcc tgaaggccaa gcccagttc 1440
68 accctgggca agcgcaaggc cacccccacc accagcagca ccagcaccac cgccaagcgc 1500
69 aagaagcgca agctgtaa                                     1518
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74 <213> ORGANISM: Artificial Sequence
76 <220> FEATURE:
77 <223> OTHER INFORMATION: Mutant, Codon-Optimized HPV16 E1
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82 gacagcgaca ccggcgagga cctggtggac ttcacgtgta acgacaacga ctacctgacc 180
83 caggccgaga ccgagaccgc ccacgccttg ttcaccgccc aggaggccaa gcagcaccgc 240
84 gacgccgtgc aggtgctgaa gcgcaagtac ctgggcagcc ccctgagcga catcagcggc 300
85 tgcgtcgaca acaacatcag ccccgccctg aaggccatct gcacgagaa gcagagccgc 360
86 gccgccaagc gccgcctgtt cgagagcgag gacagcggct acggcaacac cgaggtggag 420
87 acccagcaga tgcctgaggt ggaggccgcg cagcagaccg agacccctg cagccagtac 480
88 agcggcgcca gcggcgccgg ctgcagccag tacagcagcg gcagcgccgg cgaggcgctg 540
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90 agcaacgcca aggcgcgcat gctggccaag ttcaaggagc tgtacggcgt gagcttcagc 660
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93 tacctgcaca tccagagcct ggctgcagc tggggcatgg tgggtgctgt gctggtgcgc 840
94 tacaagtgcg gcaagaaccg cgagaccatc gagaagctgc tgagcaagct gctgtgcgtg 900
95 agcccatgt gcatgatgat cgagcctccc aagcttcgca gcaccgccgc cgccctgtac 960
96 tggtaacaaga ccggcatcag caacatcagc gaggtgtacg gcgacacccc cgagtggatc 1020
97 cagcgccaga ccgtgctgca gcacagcttc aacgactgca ccttcgagct gagccagatg 1080
98 gtgcagtggg cctacgacaa cgacatcgtg gacgacagcg agatcgcta caagtacgcc 1140
99 cagctggccg acaccaacag caacgccagc gccttcctga agagcaacag ccaggccaag 1200
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103 aagcgtttcc tgcagggcgt cccaagaag aactgcatcc tgcgtacgg cgccgccaac 1440
104 accgacaaga gcctgttcgg catgagcctg atgaagttcc tgcagggcag cgtgatctgc 1500
105 ttcgtgaaca gcaagagcca cttctggctg cagcccctgg ccgacgcca gatcggcctg 1560
106 ctggacgacg ccaccgtgcc ctgctggaac tacatcgacg acaacctgcg caacgccttg 1620
107 gacggcaacc tgggtgagcat ggacgtgaag caccgcccc tgggtgcagct gaagtgcctt 1680
108 cccctgctga tcaccagcaa catcaacgcc ggcaccgaca gccgctggcc ctacctgcac 1740
109 aaccgcctgg tgggtgttac ctcccccaac gagttccctt tcgacgagaa cggtaacccc 1800
110 gtgtacgagc tgaacgacaa gaactggaag agcttcttca gccgcacctg gagccgcctg 1860
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117 <213> ORGANISM: Artificial Sequence
119 <220> FEATURE:
120 <223> OTHER INFORMATION: Mutant, Codon-Optimized HPV16 E2
122 <400> SEQUENCE: 3
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125 gccatctact acaaggcccg cgagatgggc ttcaagcaca tcaaccacca ggtggtgccc 180
126 accctggccg tgagcaagaa caaggccctg caggccgcgc agctgcagct gaccctggag 240
127 accatctaca acagccagta cagcaacgag aagtggaccc tgcaggacgt gagcctggag 300
128 gtgtacctga ccgccccac cggtgcacac aagaagcacg gctacaccgt ggaggtgcag 360
129 ttcgacggcg acatctgcaa caccatgcac tacaccaact ggaccacat ctacatctgc 420
130 gaggaggcca gcgtgaccgt ggtggagggc caggtggact actacggcct gtactacgtg 480
131 cagaggggca tccgcacctt ctctgtgcag ttcaaggacg acgccgagaa gtacagcaag 540
132 aacaagggtgt gggaggtgca cgccggcggc caggtgatcc tgtgccccac cagcgtgttc 600
133 agcagcaacg aggtgagcag ccccgagacc atccgccagc acctggccaa ccacagcgcc 660
134 gccaccacac ccaaggccgt ggccctgggc accgaggaga cccagaccac catccagcgc 720
135 ccccgcacgc agcccgacac cggcaacccc tgccacacca ccaagctgct gcaccgcgac 780
136 agcgtggaca gcgcccccat cctgaccgcc ttcaacagca gccacaaggg ccgcatcaac 840
137 tgcaacagca acaccacccc catcgtgcac ctgaagggcg acgccaacac cctgaagtgc 900
138 ctgcgctacc gcttcaagaa gcaactgcaag ctgtacaccg ccgtgagcag cacctggcac 960
139 tggaccggcc acaacgtgaa gcacaagagc gccatcgtga ccctgacctt cgacagcgag 1020
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145 <212> TYPE: DNA
146 <213> ORGANISM: Artificial Sequence
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149 <223> OTHER INFORMATION: Mutant, Codon-Optimized HPV16 E7
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153 gacctgtacg gctacggcca gctgaacgac agcagcgagg aggaggacga gatcgacggc 120
154 cccgcgggcc aggccgagcc cgaccgcgcc cactacaaca tcgtgacctt ctgctgcaag 180
155 tgcgacagca ccttgccgct gtgcgtgcag agcaccacag tggacatccg caccctggag 240
156 gacctgctga tgggaccctt gggcatcgtg tgccccatct gcagccagaa gccctaa 297
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159 <211> LENGTH: 297
160 <212> TYPE: DNA
161 <213> ORGANISM: Artificial Sequence
163 <220> FEATURE:
164 <223> OTHER INFORMATION: Codon-Optimized HPV6a E7
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168 gtgggcctgc actgctacga gcagctggtg gacagcagcg aggacgaggt ggacgaggtg 120
169 gacggccagg acagccagcc cctgaagcag cacttccaga tcgtgacctg ctgctgcggc 180

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170 tgcgacagca acgtgcgcct ggtggtgcag tgcaccgaga ccgacatccg cgaggtgcag 240
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173 <210> SEQ ID NO: 6
174 <211> LENGTH: 318
175 <212> TYPE: DNA
176 <213> ORGANISM: Artificial Sequence
178 <220> FEATURE:
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183 atccccgtgg acctgctgtg ccacgagcag ctgagcgaca gcgaggagga gaacgacgag 120
184 atcgacggcg tgaaccacca gcacctgccc gctcgcaggg ccgagcccca gcgccacacc 180
185 atgctgtgca tgtgtgtgaa gtgcgaggcc cgcacgagc tgggtggtgga gagcagcgct 240
186 gacgacctgc gcgccttcca gcagctgttc ctgaacaccc tgagcttcgt gtgcccctgg 300
187 tgcgccagcc agcagtaa 318
189 <210> SEQ ID NO: 7
190 <211> LENGTH: 1107
191 <212> TYPE: DNA
192 <213> ORGANISM: Artificial Sequence
194 <220> FEATURE:
195 <223> OTHER INFORMATION: Codon-Optimized HPV6a E2
197 <400> SEQUENCE: 7
198 atggaggcca tcgccaagcg cctggacgcc tgccaggagc agctgctgga gctgtacgag 60
199 gagaacagca ccgacctgca caagcacgtg ctgcactgga agtgcacgag ccacgagagc 120
200 gtgctgctgt acaaggccaa gcagatgggc ctgagccaca tcggcatgca ggtggtgcct 180
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205 gacaacgaca cctgggtgaa ggtgcacagc atggtggacg ccaagggcat ctactacacc 480
206 tgtggccagt tcaagaccta ctacgtgaac ttcgtgaagg aggccgagaa gtacggcagc 540
207 accaagcact gggaggtgtg ctacggcagc accgtgatct gcagccccgc tagcgtgagc 600
208 agcaccaccc aggaggtgag catccccgag agcaccacct acactccgc ccagaccagc 660
209 accctggtga gcagcagcac caaggaggac gccgtgcaga cccctcctcg caagcgcgcc 720
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212 aacagcagcg cactcccat cgtgcagttc cagggcgaga gcaactgcct gaagtgcttc 900
213 cgctaccgcc tgaacgatcg ccaccgccac ctgttcgacc tgatcagcag cacctggcac 960
214 tgggccaagca gcaaggctcc ccacaagcac gccatcgtga ccgtgaccta cgacagcgag 1020
215 gagcagcgcc agcagttcct ggacgtggtg aagatccctc ccaccatcag ccacaagctg 1080
216 ggcttcatga gcctgcacct gctgtaa 1107
218 <210> SEQ ID NO: 8
219 <211> LENGTH: 1098
220 <212> TYPE: DNA
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223 <220> FEATURE:
224 <223> OTHER INFORMATION: Codon-Optimized HPV18 E2
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230 caggtgggtgc ccgcctacaa catcagcaag agcaaggccc acaaggccat cgagctgcag 240
231 atggccctgc agggcctggc ccagagcgcc tacaagaccg aggactggac cctgcaggac 300
232 acctgcgagg agctgtggaa caccgagccc acccactgct tcaagaaggg aggccagacc 360
233 gtgcaggtgt acttcgacgg caacaaggac aactgcatga actacgtggc ctgggacagc 420
234 gtgtactaca tgaccgacgc cggcacctgg gacaagaccg ccacctgcgt gagccaccgc 480
235 ggcctgtact acgtgaagga gggctacaac accttctaca tcgagttcaa gagecagtg 540
236 gagaagtacg gcaacaccgg cacctgggag gtgcacttcg gcaacaacgt gatcgactgc 600
237 aacgacagca tgtgcagcac cagcgacgac accgtgagcg ccaccagct ggtgaagcag 660
238 ctgcagcaca ctcccagccc ctacagcagc accgtgagcg tgggcaccgc caagacctac 720
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242 tgctgcggt accgctgcg caagcacagc gaccactacc gcgacatcag cagcacctgg 960
243 cactggaccg gcgcgggaa cgagaagacc ggcctcctga ccgtgacctt ccacagcgag 1020
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245 ggctacatga ccatgtaa 1098
247 <210> SEQ ID NO: 9
248 <211> LENGTH: 129
249 <212> TYPE: DNA
250 <213> ORGANISM: Artificial Sequence
252 <220> FEATURE:
253 <223> OTHER INFORMATION: Codon-Optimized HPV16 L1 fragment
255 <400> SEQUENCE: 9
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258 cgctgtctg 129
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261 <211> LENGTH: 129
262 <212> TYPE: DNA
263 <213> ORGANISM: Artificial Sequence
265 <220> FEATURE:
266 <223> OTHER INFORMATION: Codon-Optimized HPV16 L1 fragment
268 <400> SEQUENCE: 10
269 cgcattccacc tgcccgaccc caacaagtgc ggcttccccg acacaagctt ctacaacccc 60
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271 ggcgtgggc 129
273 <210> SEQ ID NO: 11
274 <211> LENGTH: 129
275 <212> TYPE: DNA
276 <213> ORGANISM: Artificial Sequence
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VERIFICATION SUMMARY

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